



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/785,384

02/23/2004

Georg Ockenfuss

78378 (18-74 US)

6510

27975

7590

11/29/2005

ALLEN, DYER, DOPPELT, MILBRATH & GILCHRIST P.A.
1401 CITRUS CENTER 255 SOUTH ORANGE AVENUE
P.O. BOX 3791
ORLANDO, FL 32802-3791

EXAMINER

FINEMAN, LEE A

ART UNIT

PAPER NUMBER

2872

DATE MAILED: 11/29/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/785,384

Applicant(s)

OCKENFUSS ET AL.

Examiner

Lee Fineman

Art Unit

2872

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 September 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-33 is/are pending in the application.
- 4a) Of the above claim(s) 12-21, 30 and 31 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-11, 22-29, 32 and 33 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 23 February 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 9/14/04.
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____

DETAILED ACTION

Election/Restrictions

1. Applicant's election of Group I in the reply filed on 16 September 2055 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

2. Claims 12-21 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention, there being no allowable generic or linking claim. It is further noted that newly added claims 30 and 31 are dependent upon withdrawn claim 12 and therefore are also withdrawn.

Drawings

3. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the second corrosion-suppressing layer including a metal portion on the metal layer M1, and a metal-oxide portion on the metal portion (claim 32) must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing

Art Unit: 2872

should not be labeled as “amended.” If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either “Replacement Sheet” or “New Sheet” pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

4. The disclosure is objected to because of the following informalities:

On page 1, paragraph 1, the blanks must be filled in.

On page 7, line 18 and line 26 the same reference number (44) is used for the metal layer and the corrosion suppression layer.

Appropriate correction is required.

Claim Objections

5. Claim 33 is objected to because of the following informalities: the limitation “the optical filter” lacks antecedent basis. Appropriate correction is required.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claims 1-4, 8 and 10 are rejected under 35 U.S.C. 102(b) as being anticipated by Braatz et al., US 5,591,529.

Regarding claims 1, 4, 8 and 10, Braatz et al. disclose an infrared (IR) filter (figure) comprising: a substrate (Substrate) an optical filter stack (Oxide, Ag and Blocker) disposed on a first surface of the substrate (figure), the optical filter stack including a plurality of dielectric layers (Oxide layers), and a plurality of metal layers (Ag layers) alternating with the dielectric layers (figure); and a transmission-enhancing coating (at least the top Oxide layer), which is an anti-reflective coating, wherein the infrared filter obtains an average transmission greater than or equal to 75% between 400 nm and 600 nm (see at least examples 2 and 3) and wherein the average transmission is not less than 80% between 400 nm and 600 nm (see at least example 3); and wherein the substrate comprises a birefringent material (in at least so far as any impurities/stresses in the glass substrate will make it slightly birefringent).

Regarding claims 2 and 3, Braatz et al. further disclose wherein the metal layers comprise silver (Ag layers) and further comprising a plurality of corrosion suppression layers (Blocker layers) disposed between the dielectric layers and the metal layers (figure); wherein the metal layers comprise a first metal (Ag) having a first galvanic potential and the corrosion suppression layers include a second metal (column 2, lines 1-2, tin or magnesium) having a second galvanic

Art Unit: 2872

potential, the second galvanic potential being greater than the first galvanic potential (Ag vs. tin or magnesium).

8. Claims 1, 4, 5, 8 and 10 are rejected under 35 U.S.C. 102(b) as being anticipated by Pass et al., US 5,510,173.

Regarding claims 1, 4, 8 and 10, Pass et al. disclose an infrared filter (fig. 4) comprising: a substrate (12) an optical filter stack (14, 16, 18, 22, 14', 22')) disposed on a first surface of the substrate (fig. 4), the optical filter stack including a plurality of dielectric layers (16, 22, 22'), and a plurality of metal layers (14, 14') alternating with the dielectric layers (fig. 4); and a transmission-enhancing coating (18), which is an anti-reflective coating, wherein the infrared filter obtains an average transmission greater than or equal to 75% between 400 nm and 600 nm (fig. 6, 0 hrs) and wherein the average transmission is not less than 80% between 400 nm and 600 nm (fig. 6, 0 hrs); and wherein the substrate comprises a birefringent material (in at least so far as any impurities/stresses in the glass substrate will make it slightly birefringent).

Regarding claim 5, Pass et al. further disclose wherein the dielectric layers comprise Nb₂O₅, (column 3, lines 48-55) and the metal layers comprise silver (column 4, lines 50-52).

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claims 9 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Speier et al., US 6,390,972 B1 in view of Braatz et al.

Speier et al. disclose a photodetector assembly (fig. 9) comprising a photodetector array (32) being disposed inside a package (212) of the photodetector assembly, a lid (209), which is an IR filter and a blur filter disposed in the IR filter (column 9, lines 41-44). Speier et al. discloses the claimed invention except for the IR filter having the characteristics as detailed in claim 1. Braatz et al. teaches an IR filter having the characteristics as detailed in claim 1 (set forth above). It would have been obvious to one of ordinary skill in the art at the time the invention was made to use replace the IR filter of Speier et al. with the one of Braatz et al. to achieve high transmission in the visual range while preventing damaging IR rays.

11. Claims 9 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Speier et al., US 6,390,972 B1 in view of Pass et al.

Speier et al. disclose a photodetector assembly (fig. 9) comprising a photodetector array (32) being disposed inside a package (212) of the photodetector assembly, a lid (209), which is an IR filter and a blur filter disposed in the IR filter (column 9, lines 41-44). Speier et al. discloses the claimed invention except for the IR filter having the characteristics as detailed in claim 1. Pass et al. teaches an IR filter having the characteristics as detailed in claim 1 (set forth above). It would have been obvious to one of ordinary skill in the art at the time the invention was made to use replace the IR filter of Speier et al. with the one of Pass et al. to achieve high transmission in the visual range while preventing damaging IR rays.

Art Unit: 2872

12. Claims 22, 23, 25-26 and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Braatz et al. in view of Ebisawa et al., US 6,340,529 B1.

Braatz et al. further disclose wherein a first corrosion-suppressing layer (Blocker) separates one of the dielectric layers (Oxide) from a metal layer (Ag) and wherein the first corrosion-suppressing layer is less than about 1-10 nm thick (see example 2). Braatz et al. disclose the claimed invention except for wherein a second corrosion-suppressing layer separates another of the dielectric layers from said metal layer and wherein the stack of layers are of the form D1/C1/M1/C2/D2, wherein D1 is a first dielectric layer, C1 is a first corrosion-suppressing layer, M1 is a first metal layer, C2 is a second corrosion-suppressing layer, and D2 is a second dielectric layer. Ebisawa et al. teaches an IR filter (fig. 1) including dielectric layers (11, 17 and 21), metal layers (15 and 19) and corrosion-suppressing layers (14, 16 and 18, 20) wherein a first corrosion-suppressing layer (14) separates one of the dielectric layers (11) from a metal layer (15) and wherein a second corrosion-suppressing layer (16) separates another of the dielectric layers (17) from said metal layer (15) and wherein the stack of layers are of the form D1/C1/M1/C2/D2 (fig. 1). It would have been obvious to one of ordinary skill in the art at the time the invention was made to add a second corrosion-suppressing layer as suggested by Ebisawa et al. to the system of Braatz et al. making it of the form D1/C1/M1/C2/D2 to provide better durability/protection of the metal layers of the stack.

13. Claims 6-7, 22-29 and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pass et al. in view of Ebisawa et al., US 6,340,529 B1.

Pass et al. disclose the claimed invention except for wherein a first corrosion-suppressing layer separates one of the dielectric layers from a metal layer, wherein a second corrosion-suppressing layer separates another of the dielectric layers from said metal layer; wherein the stack of layers are of the form D1/C1/M1/C2/D2, wherein D1 is a first dielectric layer, C1 is a first corrosion-suppressing layer, M1 is a first metal layer, C2 is a second corrosion-suppressing layer, and D2 is a second dielectric layer; wherein the corrosion-suppressing layers comprise a metal oxide, which is zinc oxide; wherein each of the plurality of zinc oxide layers are about 1-10 nm thick; and wherein the second corrosion-suppressing layer includes a metal portion on the metal layer M1 and a metal oxide portion on the metal portion. Ebisawa et al. teaches an IR filter (fig. 1) including dielectric layers (11, 17 and 21), metal layers (15 and 19) and corrosion-suppressing layers (14, 16 and 18, 20) wherein a first corrosion-suppressing layer (14) separates one of the dielectric layers (11) from a metal layer (15) and wherein a second corrosion-suppressing layer (16) separates another of the dielectric layers (17) from said metal layer (15); wherein the stack of layers are of the form D1/C1/M1/C2/D2 (fig. 1); wherein the corrosion-suppressing layers comprise a metal oxide (see example 1 table and column 6, lines 15-25), which is zinc oxide (column 6, lines 23-24); wherein each of the plurality of zinc oxide layers are about 1-10 nm thick (see example 1 table, specifically layers 14, 16 and 20); and wherein the second corrosion-suppressing layer includes a metal portion on the metal layer M1 and a metal oxide portion on the metal portion (column 6, lines 18-21). It would have been obvious to one of ordinary skill in the art at the time the invention was made to add corrosion-suppressing layers as suggested by Ebisawa et al. to the system of Pass et al. making it of the form D1/C1/M1/C2/D2 to provide better durability/protection of the metal layers of the stack.

14. Claim 33 is rejected under 35 U.S.C. 103(a) as being unpatentable over Braatz et al. in view of Miyazaki et al., US 5,419,969.

Although Braatz et al. further disclose that the IR filter is created with sputtering (column 2, lines 57-63), Braatz et al. do not explicitly state that the filter has been thermally treated at a temperature above 200 degrees C. Miyazaki et al. teach that multilayer films with dielectric and metal layers are commonly created with sputtering wherein the filter has been thermally treated at a temperature above 200 degrees C (column 9, lines 61-65). It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the sputtering technique (i.e. thermally treated at a temperature above 200 degrees C) of Miyazaki et al. to make the filter of Braatz et al. as it is a reliable, commonly available method.

15. Claim 33 is rejected under 35 U.S.C. 103(a) as being unpatentable over Pass et al. in view of Miyazaki et al., US 5,419,969.

Although Pass et al. further disclose that the IR filter is created with sputtering (column 9, lines 42-60), Pass et al. do not explicitly state that the filter has been thermally treated at a temperature above 200 degrees C. Miyazaki et al. teach that multilayer films with dielectric and metal layers are commonly created with sputtering wherein the filter has been thermally treated at a temperature above 200 degrees C (column 9, lines 61-65). It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the sputtering technique (i.e. thermally treated at a temperature above 200 degrees C) of Miyazaki et al. to make the filter of Braatz et al. as it is a reliable, commonly available method.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lee Fineman whose telephone number is (571) 272-2313. The examiner can normally be reached on Monday - Friday 7:30 - 4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Drew Dunn can be reached on (571) 272-2312. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



LAF
November 22, 2005


MARK A. ROBINSON
PRIMARY EXAMINER